

TO: MAJ On (note date): 20 OCT 2004 Pat. No. 6791059

Team Leaders Initials  
INFO SUPPLIED BY: JWB 10/03/04  
OAC/LDRC Initials

**SECOND REQUEST (DIFFERENT CORRECITONS), SUPERSEDE OR RECONSIDERATION**  
(OAC OR LDRC, USE A RED PEN FOR COMPLETING INFO, ON THIS COVER SHEET) (11/2002 cbn)

Team Leader, an Office Automation Clerk may assist you by supplying data from CofC Database (Current & History), PALM, and copies from Intranet, to determine type of request (second request, supersede, and/or reconsideration) and to determine if there were any errors made in decisions and/or publishing are attributable. Team Leader, check appropriate boxes below, key record (if necessary) and forward to JCWS, to order file and assign file to an LIE, to EXPEDITE.

Team Leader, DO NOT ORDER FILE.

MRD (for request attached to this cover sheet):        /        /        (Team Leader have LDRC stamp same MRD on 1050s.)

File Charged to (in PALM):        Date Charged to Loc.:        /        /       

Information re most recent record in CofC database (Check Current & History)

MRD: 10 / 15 / 04 Examiner (LIE's initials):       

Date Assigned:        /        /        Turned In:        /        /       

CofC Issued:        /        /        CofC Denied:        /        /        Updated: Y / N Date:        /        /       

Patent number listed on C of C listing in OG (circle one) Y / N

CofC Issued for this record is attached to patent on Internet (circle one) Y / N

New/different correction(s) requested. Check Intranet or with RTIS. (circle one) Y / N

☐ Duplicate (same heading and corrections published/issued CofC on Intranet. (circle one) Y / N

☐ Substitute or corrected request. Locate the original request (check with JCWS and RTIS).

☒ Second Request (another) requesting new/different corrections or additional corrections. TEAM LEADER, DO NOT ORDER FILE. If necessary, call attorney/applicant for assistance in determining if

new/different corrections. Team Leader, key new a record on: 12112104. Place and count with

CofCs keyed, same week, determine and note in to upper right hand corner if "P", "R", or "RTC".

Mark through any corrections on 1050, that were appropriately published; or JCWS assign to:       

☐ Reconsideration ☐ Supersede ☐ Special CofC ☐ Erratum ☐ Expedite CofC

Team Leader, determine if a Request for a Corrected CofC (Supersede) or Reconsideration, due to error in decisions or keying, attributable to (check the appropriate box, below):

☒ RTIS  
Keying Error

☐ LIE:         
LIE Processing or  
Decision Error

☐ OFFICE  
Error in Entry of Document  
or Ex. Decision

☐ ATTY.  
1,323 Consideration  
or Petition Required

If errors are attributable to LIE, use guidelines for appropriately notifying the LIE and recording errors (make copies supporting that the LIE made error, attach copies to this cover sheet, keeping copies for your records, and forward copies to CBN, at the end of each month).

☐ JW or OL, locate request for CofC published on:        /        /        and return to:         
(Circle OAC Initials)

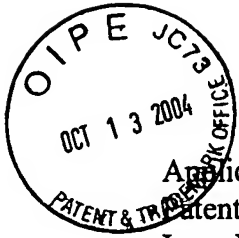
☐ Team Leader keyed record on on:        ☐ Post card Printed by Tasneem.  
(Team Leaders, give all second requests to Tasneem, to print a post card.)

☐ JCWS, order file and assign or reassign to LIE/to:        / LIE, see your Team Leader for assistance.

Comments/-Instructions:

*GH*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicant : Donald V. Smart

Art Unit : 1725

Patent No. : 6,791,059

Examiner : Samuel M. Heinrich

Issue Date : September 14, 2004

Serial No. : 10/036,431

Filed : January 7, 2002

Title : LASER PROCESSING

Certificate

OCT 19 2004

of Correction

Attn.: Certificate of Corrections Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

TRANSMITTAL OF REQUEST FOR CERTIFICATE OF CORRECTION

Applicant hereby requests that a certificate of correction be issued for the above patent in accordance with the attached request.

All errors sought to be corrected were made in printing by the Patent and Trademark Office, and no fee is believed to be due.

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: September 20, 2004

James E. Mrose  
James E. Mrose  
Reg. No. 33,264

Fish & Richardson P.C.  
1425 K Street, N.W.  
11th Floor  
Washington, DC 20005-3500  
Telephone: (202) 783-5070  
Facsimile: (202) 783-2331

Staple  
Here  
Only**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

PATENT NO. : 6,791,059  
DATED : SEPTEMBER 14, 2004  
INVENTOR(S) : DONALD V. SMART

It is certified that an error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**In the Specification:**

Column 9, line 24, delete  $[[K]]$  and insert --  $\kappa$  -- (a Greek kappa).

Column 10, line 56, delete  $[[Nd:V_{04}]]$  and insert --  $Nd:VO_4$ --.

Column 11, line 40, after "pump efficiency" delete  $[[^E]]$  and insert --E is--.

Column 12, line 5, delete  $[[Electrons]]$  and insert --Electronics--.

Column 12, line 28, delete  $[[r^n(r)]]$  and insert --  $r\eta(r)$  -- (use a Greek eta instead of a superscript n).

Column 12, line 33, delete  $[[^n(r)]]$  and insert -- $\eta(r)$ -- (use a Greek eta instead of a superscript n).

Column 12, line 34, delete  $[[^n(r)]]$  and insert -- $\eta(r)$ -- (use a Greek eta instead of a superscript n).

Column 14, line 32, delete  $[[lasers]]$  and insert --laser--.

**In the Claims:**

Column 18, line 53, insert the following claims 32-51, which correspond to application claims 88-107 (the Notice of Allowability dated June 1, 2004 stated, "The allowed claim(s) is/are 57-107."):

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PATENT NO. 6,791,059

James E. Mrose  
Fish & Richardson P.C.  
1425 K Street, NW, 11<sup>th</sup> Floor  
Washington, DC 20005

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## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : 6,791,059  
DATED : SEPTEMBER 14, 2004  
INVENTOR(S) : DONALD V. SMART

It is certified that an error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

-- 32. A laser-based method of vaporizing and removing a target link structure on a semiconductor wafer comprising the steps of:  
     providing a target link structure supported on a silicon substrate, the substrate being part of a semiconductor memory device;  
     producing a laser beam having a pulse width less than about 10 nanoseconds, an operating repetition rate of 5 kilohertz or higher, and a wavelength less than 1.2 microns;  
     generating computer-controlled timing signals synchronized with position of the laser beam relative to the target link structure;  
     controllably switching an optical switch based on the timing signals so as to transmit an output pulse of the laser beam to the target link structure on demand, the output pulse rate being controlled by controlling the optical switch;  
     focusing the output pulse onto the target link structure into a spot diameter; whereby the spot size and depth of focus is improved relative to a longer wavelength greater than 1.2 microns, and the output pulse width limits damage to the substrate.

33. The laser system of claim 32 wherein the laser beam has a pulse width less than precisely 10 nanoseconds.

34. The laser system of claim 32 wherein the laser beam has an operating repetition rate of 10 kilohertz or higher.

MAILING ADDRESS OF SENDER:

James E. Mrose  
Fish & Richardson P.C.  
1425 K Street, N.W.  
11th Floor  
Washington, DC 20005-3500

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PATENT NO. : 6,791,059  
DATED : SEPTEMBER 14, 2004  
INVENTOR(S) : DONALD V. SMART

It is certified that an error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

35. A laser system for vaporizing and removing a target link structure on a semiconductor wafer, comprising:

a laser assembly configured to produce a laser beam having a pulse width less than about 10 nanoseconds, an operating repetition rate of 5 kilohertz or higher, and a first wavelength, and configured to shift the first laser wavelength to a second laser wavelength, the second wavelength being less than 1.2 microns;

a computer programmed to control timing signals synchronized with position of the laser beam relative to a target link structure supported on a silicon substrate, the substrate being part of a semiconductor memory device; and

an optical switch that is controllably switchable based on the timing signals so as to transmit an output pulse of the laser beam to the target link structure on demand, the output pulse rate being controllable by controlling the optical switch, the laser assembly being configured to focus the output pulse onto the target link structure into a spot diameter;

whereby the spot size and depth of focus is improved relative to a longer wavelength greater than 1.2 microns, and the output pulse width limits damage to the substrate.

36. The method of claim 35 wherein the laser beam has a pulse width less than precisely 10 nanoseconds.

37. The method of claim 35 wherein the laser beam has an operating repetition rate of 10 kilohertz or higher.

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PATENT NO. : 6,791,059  
DATED : SEPTEMBER 14, 2004  
INVENTOR(S) : DONALD V. SMART

It is certified that an error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

38. A method of vaporizing and removing a target link structure on a silicon substrate, comprising the steps of:

providing a computer controlled, diode-pumped, q-switched, solid-state laser assembly;

producing a laser beam output having an output pulse width less than about 10 nanoseconds at an operating repetition rate of about 5 kilohertz or higher, and a wavelength shorter than 1.2 microns; and

focusing the output pulse onto the target link structure into a spot diameter.

39. The method of claim 38 wherein the laser beam has a pulse width less than precisely 10 nanoseconds.

40. The method of claim 38 wherein the laser beam has an operating repetition rate of 10 kilohertz or higher.

41. The method of claim 38 wherein the laser wavelength is about 1.047 microns.

42. The method of claim 38 wherein the laser wavelength is about 1.064 microns.

43. The method of claim 38 wherein the link is a thin link less than one micron in width, and whereby the spot size and depth of focus is improved relative to a longer wavelength greater than 1.2 microns, and the output pulse width limits damage to the silicon substrate.

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James E. Mrose  
Fish & Richardson P.C.  
1425 K Street, N.W.  
11th Floor  
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PATENT NO. : 6,791,059  
DATED : SEPTEMBER 14, 2004  
INVENTOR(S) : DONALD V. SMART

It is certified that an error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

44. The method of claim 43 wherein the link is a polysilicon link.

45. The method of claim 43 wherein the link is a metal link.

46. The method of claim 38 wherein the solid state laser system further comprises an optical switch positioned beyond the laser cavity and external to the laser cavity and wherein the method further comprises controllably switching the optical switch based on computer controlled timing signals so as to transmit an output pulse of the laser beam to the target link structure on demand, the output pulse rate and pulse spacing being controlled by the controlling the optical switch.

47. The method of claim 38 wherein the output pulse width is less than about 5 nanoseconds.

48. The method of claim 38 wherein the output pulse width is less than about 8 nanoseconds.

49. A laser system for vaporizing and removing a target link structure on a silicon substrate, comprising:  
a diode-pumped, q-switched, solid-state laser assembly;  
a computer programmed to control the laser assembly to cause the laser assembly to produce a laser beam output having an output pulse width less than about 10 nanoseconds at an operating repetition rate of about 5 kilohertz or higher, and a wavelength shorter than 1.2 microns;

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James E. Mrose  
Fish & Richardson P.C.  
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11th Floor  
Washington, DC 20005-3500

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INVENTOR(S) : DONALD V. SMART

It is certified that an error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

the laser assembly being configured to focus the output pulse onto the target link structure into a spot diameter.

50. The system of claim 49 wherein the laser beam output has an output pulse width less than precisely 10 nanoseconds.

51. The system of claim 49 wherein the laser beam output has an operating repetition rate of 10 kilohertz or higher.--

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James E. Mrose  
Fish & Richardson P.C.  
1425 K Street, N.W.  
11th Floor  
Washington, DC 20005-3500

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ECIT

Attorney's Docket No. 06457-007003	U.S. Patent No. 6,791,059	Mailing Date October 6, 2004	<b>For PTO Use Only</b> <i>Do Not Mark in This Area</i>  
Application No. 10/036,431	Filing Date January 7, 2002	Attorney/Secretary Init JEM/ech	
Title of the Invention LASER PROCESSING			
Applicant Donald V. Smart			
Enclosures Request for Certificate of Correction (1 pages) Certificate of Correction (6 pages) 